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10/050,277	01/15/2002	David A. Schwartz	SOL.004.P	5923

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EXAMINER

NAFF, DAVID M

ART UNIT

PAPER NUMBER

1651

DATE MAILED: 03/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

101050,277

Applicant(s)

Schwartz

Examiner

Neff

Group Art Unit

1651

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 2/15/02
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-36 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-36 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Receipt is acknowledged of drawings filed 4/12/02.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

Claims examined on the merits are 1-36 which are all claims in the application.

Specification

The disclosure is objected to because of the following
5 informalities: in the first paragraph on page 1, the specification should be amended to show US serial numbers of the related applications cited.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C.
10 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-36 are rejected under 35 U.S.C. 112, second paragraph, as
15 being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the last line of claim 1, "unmodified or modified surface" is uncertain as to meaning and scope. When a surface is modified or unmodified can be relative and subjective. For example, would washing a
20 surface with water be modifying the surface?

In line 5 of claim 1, there is not clear antecedent basis for "the biomolecule/polymer conjugate". Step b should require producing the biomolecule/polymer conjugate.

Reciting "oligo- or poly-nucleotide in lines 1 and 3 of claim 3 is
25 confusing since oligonucleotide and polynucleotide are recited in claim 2. Terms should be consistent throughout the claims. In line 3, "the modified" does not have clear antecedent basis.

In line 2 of claims 4 and 7, the meaning and scope of "or internally" is uncertain.

Claims 11 (line 4) and claim 16 (line 2) are unclear by reciting "including". It is uncertain as to whether the derivatives being
5 included are to be present or are merely being mentioned as examples. Components should be recited only when intended to be required. Additionally, in lines 1 and 3, "chosen from" should be changed to -- selected from the group consisting of -- to be clear, and in lines 2 and 5, "or" should be changed to -- and --.

10 Similarly, in claims 12, 13 and 15, "chosen from" should be changed to -- selected from the group consisting of --, and the following "or" should be changed to -- and --.

In line 2 of claim 13, "preferably chosen" makes unclear as to whether the specific cationic polymers recited are to be required.

15 Claim 18 is unclear by not having clear antecedent basis for "the--- --plurality of moieties".

In line 1 of claims 21-24, there is not clear antecedent basis for "the polynucleotide/polymer conjugate".

20 Claim 25 is unclear as to how it further limits claim 3 by not setting forth distinct, clear and positive process steps.

Claim 29 is unclear as to whether the glycoprotein in line 1 is the glycoprotein of claim 2. It is suggested that "a" be changed to -- the -
-.

25 In line 1 of claim 30, there is not clear antecedent basis for "the protein incorporated with the first component of a reaction couple".

Additionally, in line 2 there is not clear antecedent basis for "the second component of a reaction couple". Additionally, the meaning and scope of "reaction couple" is uncertain.

5 In line 2 of claims 31 and 35, "or a different reactive moiety" is unclear as to what is required.

Claim 32 is unclear by not setting forth clear, distinct and positive process steps. The meaning of "peptide is modified or synthetic prepared to possess the first component of a reaction couple" is uncertain as to meaning and scope. Also, is the peptide that of claim 2
10 or some other peptide.

In line 1 of claim 35, there is not clear antecedent basis for "the peptide incorporated with the first component of a reaction couple", and in line 2 there is not clear antecedent basis for "the second component of a reaction couple".

15 ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

20 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25

Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koster et al (6,133,436) in view of Mirzabekov et al (5,981,734) and Conrad et al (5,276,013) and Rampal (6,013,789).

30 The claims are drawn to a method of immobilizing a biomolecule on a surface by covalently linking the biomolecule to a mono- or bi-functional

polymer, and covalently and/or electrostatically immobilizing the resultant biomolecule/polymer conjugate on a surface that is modified or unmodified.

Koster et al disclose covalently attaching nucleic acids to beads
5 attached to a solid support (col 3, line 57 to col 5, line 4). A linking group such as polylysine (col 7, line 16) can be used to bind the beads to the support or the nucleic acid to the beads.

Mirzabekov et al, Conrad et al and Rampal disclose modifications to nucleic acids to provide a functional group for covalently binding the
10 nucleic acids to form a conjugate or to bind the nucleic acids to a support.

It would have been obvious to modify the nucleic acid in Koster et al to have a functional group that will bind the nucleic acid to the polylysine linking group and use the linking group to bind the nucleic
15 acid to the beads in view of nucleic acid modifications taught by Mirzabekov et al, Conrad et al and Rampal for binding a nucleic acid to a support or to form a conjugate. The limitations of dependent claims would have been matters of obvious choice in view of the disclosures of the references.

20 Claims 27-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-26 above, and further in view of Laguzza et al (4,801,688) or Howard jr et al (5,262,317) or Olsen et al (6,114,509).

The claims require the biomolecule to be a protein or peptide.

Laguzza et al, Howard jr et al and Olsen et al disclose modifying proteins for coupling the proteins to a polymer or to form a conjugate.

It would have been obvious to use a protein or peptide in place of the nucleic acid of Koster et al when the function of a protein or peptide is desired in view of protein modification suggested by Laguzza et al, Howard jr et al or Olsen et al for coupling a protein to a polymer or to form a conjugate containing the protein.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is (703) 308-0520. The examiner can normally be reached on Monday-Thursday and every other Friday from about 8:30 AM to about 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, a message can be left on voice mail.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn, can be reached at telephone number (703) 308-4743.

The fax phone number is (703) 872-9306 before final rejection or (703) 872-9307 after final rejection.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.


DAVID M. NAFF
PRIMARY EXAMINER
ART UNIT 1657